TOWNSEND (C. W.)

HÆMORRHAGES IN THE NEW-BORN.

BY

CHARLES W. TOWNSEND, M. D.

Reprinted from the Boston Medical and Surgical Journal of August 27, 1891.

BOSTON:
DAMRELL & UPHAM, PUBLISHERS,
No. 283 Washington Street.
1891.

S. J. PARKHILL & CO., PRINTERS
BOSTON

HÆMORRHAGES IN THE NEW-BORN.[1]

BY CHARLES W. TOWNSEND, M.D.

THE occurrence of hæmorrhage in the new-born, from the gastro-intestinal tract and from other parts of the economy, has been frequently noted in Medical journals, and various causes for it have been ascribed. Most of the text-books on children's diseases, however, including the new cyclopædia of Keating, say little or nothing about this disease except as it occurs in the form of umbilical hæmorrhage.

At the Boston Lying-in Hospital, out of 5,225 deliveries up to May 1, 1891, some 30 cases of hæmorrhage among the infants are recorded; while in the out-patient department, out of 2,000 deliveries, two cases are recorded; making 32 cases in all out of 7,225 cases, or less than one half of one per cent. The proportion of cases in the hospital is nearly six times that in the out-patient department, however, the percentages being .57 in the former case and .10 in the latter.

In the following paper I have endeavored to analyze these cases, and, in a brief manner, the literature of the subject, in order to arrive, if possible, at some conclusions as to the nature of the disease, its etiology, prognosis and treatment.

The *clinical history* of a typical case is somewhat as follows: A baby, often well developed and apparently healthy, is noticed to vomit a little blood or bloody mucus on the second or third day of its life. The stools, which by this time should begin to assume the normal yellow color, still continue dark; but this

[1] Read before the Boston Society for Medical Observation, June 1, 1891.

brown color is found, on examination with the microscope, to be due to altered blood corpuscles. Oftentimes, however, this special examination is not necessary, for the napkins about the discharge are tinged red, or the blood is even voided in unmistakable quantities. The navel, about the insertion of the cord, or on the exposed surface, if the cord has already dropped off, is apt to bleed at the same time, and blood will ooze continually from any slight crack or abrasion of the skin. Epistaxis and bleeding from the mouth may also occur, and ecchymoses of greater or less extent may appear under the skin. Jaundice is frequently seen at first, to be succeeded by great pallor, as a result of loss of blood. The temperature may be elevated even to 106° F. Death or recovery occurs generally within three or four days.

In the 32 cases analyzed, 19 were males, 13 females, a proportion of the sexes which is significant when the relation of this disease to true hæmophilia is considered. Twenty-five cases died, seven recovered, a mortality of 78 per cent. The day of death in one-half of the fatal cases was from the third to the fifth day, one dying on the first day, and three as late as the fourteenth day.

Hæmorrhage was first noticed in two on the first day, in seven on the second day, in eleven on the third day, and in six on the fourth day. In the six other cases the hæmorrhage occurred between the sixth and the ninth day, with one exception, which began to bleed on the fourteenth day. The duration of the fatal cases was but a portion of one day; in four, the disease lasted one day; in three, three days; and in three disease, from the time it was discovered, in nine of the more, five days. Of those who recovered, the disease lasted, in three cases, respectively two, six and eight days. In two cases it lasted three days, and in two more five days.

The sources of the hæmorrhage are given in the following table:

	Cases.
Intestine	12
Stomach	12
Mouth	12
Nose	8
Navel	14
Ecchymoses of skin	11
Crack of skin	1
All of above sources	3
Navel alone	2
Gastro-intestinal tract alone	15
Stomach, mouth and nose alone	7
Intestines alone	3
Ecchymoses alone	2

Slight, uncomplicated hæmorrhage from the uterus or vagina, pseudo-menstruation, is not very uncommon in the first few days of life, and is not included in this list.

Although umbilical hæmorrhage, which is the best-known form of bleeding in the new-born, occurred in nearly half of the cases, it is interesting to note that in all but two of these cases there were hæmorrhages elsewhere, a fact which points to the general hæmorrhagic nature of the disease. This fact was brought out by Dr. Francis Minot, in 1852, in the monograph which first called the attention of the profession to this disease.

In one case a cephalhæmatoma occurred; in another persistent hæmorrhage took place from scratches on the face and foot. In six of the cases the temperature is recorded; in all but one of which it was elevated, reaching in one case 106.6°. In the case where there was no fever, the temperature was taken only once, four hours before death, and found to be subnormal. Jaundice was noted in five cases, cyanosis in four; and in all where much blood was lost the infant be

came blanched. In four, convulsions appeared before death.

Post-mortem examinations were made in six cases. In one case the liver showed an increase of connective tissue, and the diagnosis of cirrhosis was made. In another case a hæmorrhage was found between the brain and dura mater. In the other cases the results of the examination were negative. Two cases were believed to be syphilitic.

The mothers' labor was normal in all but four cases, three being delivered by forceps low down, one by version. Two of the mothers had mild septicæmia, all the others making normal recoveries.

In 609 cases collected from the writers, given in the bibliography appended to this article, including my own cases, and excluding duplicates, there were 482 deaths and 127 recoveries, or a mortality of 79 per cent.; 210 were male, 150 female, and in 249 the sex is not recorded. This would make a percentage of 58 male amd 42 female.[2] I find records of 81 autopsies in this list. In the majority of cases nothing abnormal was found except extreme anæmia (which was the result of the bleeding), and in many cases internal hæmorrhages. Injection of the mucous membrane of the intestines, particularly of the colon, was frequently noted, although the observers are particular to state that no gross lesion of the mucous membrane was to be detected. In a very small number of cases the following diseased conditions have been found: syphilis, enlarged spleen, enlarged liver, inflammation of the umbilical and portal vein, acute fatty degeneration.

The *prognosis* in this affection is poor, the average mortality, as noted in my cases, being 78 per cent.; but on examining the cases more closely, it is seen

[2] For a number of these references I am indebted to Dr. Minot.

that the prognosis in cases of hæmorrhage involving the gastro-intestinal tract alone, — sometimes called malæna neonatorum, — is slightly better, but 71 per cent. of these cases proving fatal. I have reason to think, however, that the prognosis is even better than these figures show, for the less serious cases of bleeding from the digestive tract may have not been recorded or not recognized. This latter error may arise in cases of discharge of blood high up in the intestine in moderate quantity. The blood then becomes changed to a dark, tarry color, so that the stools resemble the ordinary meconium stools. As before remarked, however, the blood can be detected by a microscopical examination, and in nearly all cases by the pink staining of the napkin on the border of the dejection.

There is a source of error which might lead one to diagnosticate hæmorrhage from the stomach when this is not the case. I refer to the fact that blood may be sucked from the nipples of the mother, in some cases from a crack or abrasion that can scarcely be detected. The presence of the abnormal substance in the infant's stomach excites vomiting, and the blood is ejected to the great consternation of the family, until the source of the hæmorrhage is discovered. It is said that maternal blood may be swallowed during delivery and afterwards vomited in the same way.

Where ecchymoses appear on the skin, in addition to the hæmorrhages elsewhere, the prognosis is worse. Out of eleven such cases only two recovered, although a fatal termination in these cases seemed imminent.

In making our prognosis it is to be remembered, therefore, that the prospect is not absolutely a bad one, even in the worst cases where ecchymoses appear on the skin, and the prognosis is the best in cases involving the gastro-intestinal tract alone.

Another point, it seems to me, is of value in making

the prognosis, and that is, that the disease is, in nearly all cases, but of a temporary or self-limited character, confined almost entirely to the first ten days of life; and the longer the baby lives, the better are its chances for recovery. In other words, in the majority of cases, it is not the fact, as is often supposed, that these infants are affected with true hæmophilia, and are therefore doomed, even if they recover from the present attack, to subsequent and possibly fatal hæmorrhages. The reasons for this statement will appear later on.

The *etiology* of this disease is a subject about which much theorizing has been done, and I shall content myself with a brief outline of the causes assumed by various writers.

In the first place, prolonged labor, early ligation of the cord, plethora, debility, retention of meconium, difficulty in the establishment of the pulmonary circulation from obstruction to the breathing at birth, may, one or all, owing partly to the normal injection of the blood-vessels of the intestine of the new-born, act as exciting causes in this disease; but one or several of these conditions are so frequently met with, without such dire results to the child, that they can, it seems to me, be properly excluded from the true causes. Moreover, cases of hæmorrhage occur without these exciting causes. Septicæmia, in severe form (the source of infection being generally the umbilicus), and syphilis are, in a small number of cases, the causes of the bleeding. Rupture of large blood-vessels, as a source, has been disproved by all autopsies.

True inherited hæmophilia is in but rare instances the cause; and the arguments in favor of this statement are briefly: (1) The fact that infants who bleed during the first few days of life, and recover, are not apt to be bleeders in after life. (2) Hæmorrhages in

the new-born, as shown by my cases and by the larger ones given above, are only slightly more common among males than females (58 to 42), while among true bleeders the preponderence of females is extremely marked, being stated at 13 to 1, or 92.8 to 7.2.

(3) In bleeder families the tendency is rarely shown before the end of the first year. Thus, Grandidier states that only 12 infants in 185 bleeder families with 576 individual bleeders were affected with hæmorrhage on the fall of the umbilical cord. Moreover, it is extremely rare among the large number of cases reported by various authors for a family history of hæmorrhagic tendency to be obtained, although this is a point that would certainly be known if it existed, owing, as Partridge well says, to its dramatic nature.

Confirmatory of the first of the above statements is the fact that, in several instances, infants who had recovered from an attack of hæmorrhage during the first week of life, have been circumcised a few days later without unusual hæmorrhage taking place. Two such cases are recorded by Ritter and one by Rotch. In two cases on my list bleeding occurred from the base of the cord as well as from various mucous surfaces, but the patients recovering, the cords dropped off, in one case on the eighth day, in the other on the eleventh day, without further hæmorrhage at this time. In the former of these cases the cord fell off in two days, in the latter four days, after hæmorrhage had ceased.

Deficiency in the nutrition or elasticity of the capillary walls, acute fatty degeneration of the new-born, feeble coagulability of the blood, and jaundice, are explanations sometimes given for this disease.

The self-limited character of the affection, the elevated temperature in some cases, and the greater prevalence in hospitals, are arguments of force in favor of

an infectious nature; and Klebs and Eppinger have found in these cases a micro-organism. In support of this view, Ritter says that while there were previously many cases yearly at the Prague Foundling Hospital, there was only one following the use of new and larger wards. The disease, as ordinarily seen, can, however, have no connection with puerperal septicæmia, for that disease is now practically eradicated from the Boston Lying-in Hospital; but it occurs independently of it, just as thrush caused by oidium lactans may get a foothold and flourish in a hospital free from septicæmia, although thrush is not common in private practice. In fact, more than two-thirds of the cases occurred in the Lying-in Hospital after the adoption of the antiseptic system.

In the *treatment* of this disease or symptom of disease many measures have been adopted, and also none at all, the latter from a feeling of helplessness in regard to it, and also, as we have shown, the erroneous belief that in all cases, even if the infant survived, it would always be subject to hæmorrhages. Bearing in mind the brief course and self-limited character of the disease in the majority of cases, we should make every effort to control hæmorrhage and to sustain the vital powers. External bleeding from scratches or from the umbilical wound can best be checked by properly applied pressure; and although compresses for this purpose often fail, digital pressure, if intelligently directed and persisted in, is almost always successful. Instances are on record of devoted mothers and nurses, who, by holding their fingers pressed for hours to the umbilicus, have saved the infant's life. Styptics are generally unsatisfactory; and deep suturing of the umbilical wound, although in some cases successful, in others only adds a fresh source for hæmorrhage from the stitch-holes.

The value of astringents, of ergot or of mineral acids, for internal hæmorrhage, are of somewhat doubtful value. Alcohol, by increasing the power of the heart, would theoretically increase the bleeding; but, if we accept the belief in the infectious nature of the disease, it would seem in many instances to be indicated. Warmth to the extremities, perfect quietude and freedom from motion, and most careful and persistent feeding from spoon or dropper with milk drawn from the breast of the mother or wet-nurse, might tide over many otherwise fatal cases through the brief period of this disease. Antiseptic treatment of the cord would be indicated for prophylaxis.

SUMMARY.

(1) Hæmorrhage in the new-born is in nearly all cases an acute transitory affection, beginning within the first week or ten days of life and lasting from one to six days.

(2) The etiology of this form is perhaps best explained by the infectious theory.

(3) In very exceptional cases the disease is due to true hæmophilia as it is seen in older children and in adults. In a small number of cases it is one of the symptoms of syphilis or of septicæmia.

(4) The mortality from all forms is about 75 per cent.

(5) Treatment should be guided by the knowledge of the transitory and perhaps infectious character of the affection as it is seen in the majority of cases.

REFERENCES.

André. Schmidt's Jahrbucher, Bd. 72, p. 142.
Billard. Traité des Maladies des Enfants, p. 335.
Bouchut. Actes Soc. Méd. de Hôp. de Paris, 1852, fasc. ii, p. 116.
Bozonet, E. Des Hæmorrhagies Gastro-intest., chez l'Enfant Nouveau-né, Paris, 1866.

Bridge, N. Chicago Medical Journal, 1875, xxxii, 487.
Bührlen. Med. Cor. Bl d. Württemb. Ärztl ver Stuttg., 1852, xxvi, 237
Cappie. Edinburgh Medical Journal, June, 1866, p. 1144.
Dakin. Lancet, March 30, 1889.
Depaul. J. de Sages-femmes, Paris, 1880, viii, 17.
Ehrenhaus. Bericht d. Grazer Naturforscherversamml, 187, p. 175.
Elsässer. Med. Cor bl. des Württembg. ärtl, Vereins, 1856.
Eppinger, H Wien med. Presse, 1878, xix, 778, 864.
Epstein. Œsten Jahrb f. Pædiat., Wien, 1877, vii, 119.
Evert. Fricke and Oppenheimer's Zeitsch.. Bd. 13, 1858.
Falsemreich, T. Wien med. Presse, 1879, xx, 242.
Gibb. Boston Medical and Surgical Journal, May 1, 1884.
Grandidier, L Die freiwilligen nabelblutungen der neugeborenen, Cassel, 1871 (with bibliography).
Giroy. Lancet, March 31, 1888.
Gilman, C. R. American Journal Medical Sciences, Philadelphia, 1835, xvi, 248.
Graves, J. B. Medical and Surgical Reporter, Philadelphia, 1870, xxii, 188.
Haas. Med. Jahrb. f. d. Herzogth, Nassau, Wiesb., 1851, 320.
Henoch. Kinderkrankheiten, 2d ed., Berlin, 1883, p. 59.
Henry, G. R. American Journal Medical Sciences, 1854, n. s., xxvii, 268.
Hewitt, G. London Medical Times and Gazette, April 16, 1864, p. 436.
Hofmann, J. Med. Ann. Heidelb , 1842, viii, 241; 1843, ix, 164.
Homans. Boston Medical and Surgical Journal, 1840.
Hoogeweg Med. Ztg., Berlin, 1852, xxi, 71.
Jenkins, J. F. Transactions American Medical Association, vol. xi, 1858, p. 261.
Kehrer. Arch. f. Gynækol., Bd. x, Hft. 2, 1876.
Klebs. Aerztl. Cor. Blatt , 1874, p. 414.
Kwisch. Gaz. Méd., 1841, p. 635.
Letzerich. Ætiologie und die Keuntniss der Purpura Hæmorrhagica, 1884.
Linton. Edinburgh Medical Journal, April, 1867.
Lumpe. Œsterr. med. Woch., 1841, 1201.
Lyman, H. M. Chicago Medical Journal and Examiner, 1875, xxxii, 801.
Manley, T. H. New York Medical Record, 1879, xvi, 308.
McSherry, R. American Journal Medical Sciences, 1858, n. s., xxxvi. 356.
Minot, F. American Journal Medical Sciences, n. s., vol. xxiv, p. 310. Boston Medical and Surgical Journal, 1864, lxx., 403.
Neale, R. Assoc. M J., London, 1854, 532.
Otto, H. T. De hæmorrhagia Neonatorum intestinale, Lipsiæ, 1856.

Packard, J. H. Amer'can Journæl Obstetrics. New York, 1881, xiv, 686. Philadelphia Medical Times, 1880–81, xi, 380.
Partridge. Medical Record, August 23, 1890.
Puech, A. Gaz. Obst., Paris. 1874. iii, 197.
Rahn-Escher, J. K. Gaz. Med. de Paris, 1835, 25, iii, 401.
Richard. Traité prat des maladie des enfants, 1839.
Rilliet. Gaz. Med. de Paris, 1848, 3 s., iii, 1029.
Ritter, Von Rittershain. Oesterr. Jahrb. f. Pædiat., Wien, 1870, i, 15, and 1871, i, 127.
Ribemont, A. Des Hemorrhagies chez le Nouveau-ne. Paris, 1880.
Ritchie. Edinburgh Medical Journal, June, 1868, p. 1072.
Ritter, G. Prag. Med. Woch , 1877, ii, 425, 445.
Rotch. Boston Medical and Surgical Journal, 1877, xcvii, 390.
Shallenmüller. Med. Cor. Bl. d. Wurttemb, arztl. ver. Stuttg., 1853, xxiii, 171.
Schuller. Med. Ztg. Berlin, 1854, xxiii, 7.
Smith, Stephen. New York Journal of Medicine, 1855, n. s xv, 73.
Stevens, N. C. Boston Medical and Surgical Journal, 1858, viii, 396.
Steinthal. J. für Kinderkr. Feb., 1857.
Stuart, J A. E. Edinburgh Medical Journal, 1878–9, xxiv, 1081.
Suren. Woch. f. d. ges Heilk. Berlin, 1846, xii, 307.
Taylor, N. E. Virginia Medical Monthly. Richmond, 1877, xiv, 672.
Uhdr, C. W. F. Monat. f. Geburtsk. u. Franenk., Berlin, 1856, viii, 24.
Vogel, M. Centbl. f. Gynæk., 1882, vi, 417.
Wachsmuth, O. Uber Blutengen der neugeborenen und ihr ätiologischen momente, Gottingen, 1876.
Wieczorek, A. Uber die freiwillingen Nachblutungen der neugeborenen, Griefswald, 1871.
Wyner. Virchow's Archiv., Bd. 55, p. 3.
Young, W. B. American Journal Medical Sciences, 1854, n. s., xxviii, 280.